

13



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/217,401	12/21/1998	KENZO ISHIDA	884.088US1	8371

21186 7590 12/07/2001

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EXAMINER

TRAN, THANH Y

ART UNIT PAPER NUMBER

2841

DATE MAILED: 12/07/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/217,401

Applicant(s)

ISHIDA ET AL.

Examiner

Thanh Y. Tran

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,9-14 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,9-14 and 17-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

### DETAILED ACTION

Applicant's arguments with respect to claims 1, ~~4-7~~ 9-14 and 17-24 have been considered but are moot in view of the new ground(s) of rejection.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-5, 7, 18-19 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 4,620,761) in view of Li et al. (U.S. 6,264,476).

As to claim 1, Smith et al. disclose a mounting socket (see Fig. 9) comprising: a socket body (70) having a first side and a second opposite side, the body (70) having a plurality of vias extending therethrough (72 and 74); and a plurality of conductive terminals (80) within the vias (72 and 74), wherein the terminals (80) are adapted to be elastically compressible and exert a return force when compressed (see Fig. 9, element 80; column 6, lines 23-35), the terminals comprising a coil (see Fig. 9, column 5, line 53).

Smith et al. does not disclose the terminals comprising a conductive polymer. However, Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a coil (Fig. 3B, element 34) and a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in

Art Unit: 2841

figure 9 of Smith et al to include a conductive polymer as shown in column 8, lines 1-7 of Li et al., because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

As to claim 4, Smith et al. doesnot disclose the terminals comprising a conductive polymer which is injected within the vias. However, Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 9 of Smith et al to include a conductive polymer which would be injected within the vias, because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

As to claims 5 and 7, Smith et al. disclose the instant claimed invention except for: a first and second adhesive layer affixed to the first and second sides of the body.

Li et al. discloses a mounting assembly (see Fig. 1, col. 7, lines 39) having a first adhesive layer and a second adhesive layer affixed to a first and a second sides of a body assembly.

Therefore, the limitations of a first adhesive layer and a second adhesive layer used for attaching the conductive terminals between the two elements would have been obvious to one of ordinary skill in the art at the time the invention was made because the skilled artisan would use the adhesive material such as adhesive layer for the purpose of securely attaching between the two elements.

As to claims 18-19, Smith et al. disclose a substrate (70) having a plurality of conductive terminals (80), therethrough, the terminals (80) are adapted to be elastically compressible and exert a return force when compressed (see column 7, lines 23-30), the terminals comprising a coil (see Fig. 9, column 5, line 53).

Smith et al does not disclose the terminals comprising a conductive polymer. Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 9 of Smith et al to include a conductive polymer as shown in column 8, lines 1-7 of Li et al., because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

Smith et al does not disclose a first adhesive layer affixed to a first side of the substrate and a package affixed to the first adhesive layer; and a second adhesive layer affixed to a second side of the substrate, the second side opposite the first side. Li et al. discloses a mounting assembly (see Fig. 1, col. 7, lines 31-39) comprising a first adhesive layer and a second adhesive layer affixed to a first and a second sides of a body assembly. Therefore, the limitations of "a first adhesive layer affixed to a first side of the substrate and a package affixed to the first adhesive layer; and a second adhesive layer affixed to a second side of the substrate, the second side opposite the first side" would have been obvious to one of ordinary skill in the art at the time the invention was made because the skilled artisan would use the adhesive material such as

first and second adhesive layers for the purpose of securely attaching between the two elements such as substrate and package.

As to claim 20, Smith et al. disclose an integrated circuit interconnection (see Fig. 9) comprising: the substrate (70) having a plurality of vias (72 and 74); and a plurality of elastically compressible terminals, the terminals comprising a coil (see Fig. 9, column 5, line 53), ~~and~~ terminals adapted to exert a return force when compressed, each terminal positioned in a via (see Fig. 9, element 80; column 6, lines 23-35).

Smith et al. does not disclose the terminals comprising a conductive polymer. However, Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a coil (Fig. 3B, element 34) and a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 9 of Smith et al to include a conductive polymer as shown in column 8, lines 1-7 of Li et al., because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

As to claim 21, Smith et al. disclose a mounting socket (see Fig. 9) comprising: a socket body (70) having a first side and a second opposite side, the body (70) having a plurality of vias extending therethrough (72 and 74); and a plurality of conductive terminals (80) within the vias (72 and 74), wherein the terminals (80) are adapted to be elastically compressible and exert a return force when compressed (see Fig. 9, element 80; column 6, lines 23-35), the terminals comprising a coil (see Fig. 9, column 5, line 53) and a circuit board having a plurality of mounting areas, the mounting areas disposed in a plurality of interconnected planes (88) which

are substantially non-planar with each other and wherein each terminal is individually compressible to contact its respective mounting area at the plane of the mounting area (see Fig 9, element 88).

Smith et al. does not disclose the terminals comprising a conductive polymer. However, Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a coil (Fig. 3B, element 34) and a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 9 of Smith et al to include a conductive polymer as shown in column 8, lines 1-7 of Li et al., because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

As to claim 22, Smith et al. disclose a circuit assembly, comprising: a microprocessor (see column 4, lines 5-13), a substrate having a built-in socket (70) having a plurality of vias (72 and 78) therein, and a plurality of conductive terminals (80), the terminals are adapted to exert a return force when compressed (see Fig. 9, element 80; column 6, lines 23-35), the terminals comprising a coil (see Fig. 9), at least a portion of each terminal disposed within a via; and a motherboard (14) having a plurality of mounting areas (88) thereon, wherein each terminal is compressed to contact a mounting area (see Fig. 9).

Smith et al. does not disclose the terminals comprising a conductive polymer. However, Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a coil (Fig. 3B, element 34) and a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having

ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 9 of Smith et al to include a conductive polymer as shown in column 8, lines 1-7 of Li et al., because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

As to claim 23, Smith et al. disclose the terminals (80) are adapted to accommodate for an uneven or warped substrate upon which the mounting socket is disposed (see Fig. 9).

As to claim 24, Smith et al. disclose the terminals (80) are solderless.

3. Claims 6 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. 4,620,761) and Li et al. (U.S. 6,264,476) as applied to claims 1 and 5 above, and further in view of Stopperan (U.S. 5,719,749).

As to claim 6, Smith et al. disclose the instant claimed invention except for: a polymer tape applied to the first adhesive layer; a ground and power line circuit laid on the polymer tape; and a second adhesive layer applied on and protecting the ground and power line circuit.

Stopperan discloses the mounting assembly (see Figs. 2-3) having the first adhesive layer formed by polymer (see column 9, lines 17-19) and a ground (82) and power trace circuit (see column 1, lines 44-46) laid on the polymer tape and the second adhesive layer appliedn and protecting the ground and power line circuit (see Figs. 2-3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the ground and power traces in Stopperan's the adhesive layer in Smith et al.'s mounting device, for the purpose of protecting the ground and the power lines from being electronic shocks.



Claims 9-11 recite methods steps are inherently performed during the making of product claims 1 and 4-7.

4. Claims 12-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (U.S. 4,705,205) in view of Li et al (U.S. 6,264,476).

As to claim 12, Allen et al. disclose a circuit interconnect (Fig. 7), comprising: a circuit board carrier (32) having a plurality of through holes (39) formed therein; and a plurality of elastically compressible conductive terminals (see Fig. 13, element 62) with lands at each end (10, 12), each terminal disposed in one of the through holes (see Fig. 7, element 39), wherein the terminals are adapted to be elastically compressible and exert a return force when compressed, each terminal comprising a coil.

Allen et al. disclose the instant claimed invention except for: the terminals which comprise a conductive polymer. Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 13 of Allen et al. to include a conductive polymer as shown in column 8, lines 1-7 of Li et al., because such modification would provide a low production cost, thermal stability, and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

As to claim 13, Allen et al. disclose a first adhesive layer (see Fig. 10, element 46) affixed to a first side of the circuit board carrier, the first layer having openings (42) to expose the lands.

As to claim 14, Allen et al. disclose a second adhesive layer (46) affixed to a second side of the circuit board carrier and the second layer (46) having openings (as shown in Fig. 10) to expose the lands (10, 12), the second side opposite the first side.

As to claim 17, Allen et al. disclose the instant claimed invention except for: the conductive terminals comprising a conductive polymer which is injected within the vias.

Li et al discloses a mounting socket (see Figs. 1, 2, 3a-3b) wherein the terminals (comprising element 14 and 18) (see Fig. 1) comprising a conductive polymer (see col. 8, lines 1-7). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the terminals as shown in figure 13 of Allen et al to include a conductive polymer, as shown in figure 9 of Li et al., which would be injected within the vias, because such modification would provide a low production cost, thermal stability and inertness to humidity and air and chemical impurities (see Li et al.'s reference, col. 8, lines 1-7).

### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lopergolo et al. (U.S. 5,800,184) and Howard et al. (U.S. 6,102,709) disclose the circuit interconnections.

Art Unit: 2841

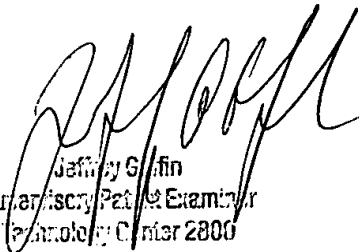
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (703) 305-4757. The examiner can normally be reached on Monday through Thursday and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-4311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-9556.

TYT

  
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